

What Is Claimed Is:

1. A food grinding machine, comprising:

a static outer jacket including a peripheral walls enclosing an inner space,
and being coupleable to a loading inlet of the grinding machine;

a plurality of successive annular recesses being formed in said peripheral wall, said recesses having preset volumes and being separated one from the other;

a food pusher and cutter element being mounted in said inner space for rotation coaxial to said jacket for advancing food along a food processing path;

a plurality of screening means defining differentiated screening passage regions provided in sequence along the food processing path for screening processed food, said screening means being interposed between said pusher and cutter element and said jacket and arranged each in a corresponding relationship with a respective one of said recesses; and

a plurality of free passage means for allowing free passage of the processed food from a screen passage region to a subsequent screen passage region, said free passage means being constituted by respective slotted collar regions provided between every two consecutive said differentiated screening passage regions;

wherein said food processing path includes said plurality of successive recesses and said plurality of screening means through each of which the

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processed food is advanced by said pusher and cutter element by being inserted through a said screening means into, and subsequently extracted through a said free passage means out of a said recess and further inserted through a subsequent said screening means into a subsequent said recess.

2. The grinding machine of claim 1 wherein said annular recesses have each a transverse cross section with rounded edges which are blended with concurrent edges with a convex profile to define a forced path for the processed food, each convex profile furthermore acting as supporting and locking element for said screening means.

3. The grinding machine of claim 1, wherein said pusher and cutter element is constituted by blade elements, having sharp helical edges oriented so as to provide a screw feeding effect and to skim an internal surface of said screening means as the blade elements rotate.

4. The grinding machine of claim 1, wherein said plurality of screening means each includes a thin hollow cylindrical body coaxially arranged with respect to said jacket and comprising sets of through holes distributed on surface regions thereof, said sets of holes defining said differentiated screening passage region.

5. The grinding machine of claim 4, wherein at each of said differentiated screening passage regions a respective set of through holes is provided with the holes being in such a number and with such a diameter so that a resulting total holed surface is provided for each of said screening passage regions, which is substantially constant.

6. The grinding machine of claim 1, wherein the peripheral wall of said static outer jacket flares outwards.

7. The grinding machine of claim 6, wherein said screening means are constituted by a plurality of successive hollow cylinders having corresponding sets of through holes with diameters decreasing from one cylinder to a subsequent cylinder along said food processing path, said hollow cylinders being arranged mutually coaxial and joined to each other through a respective one of said collar regions, with the diameters of said hollow cylinders increasing along said food processing path.

8. The grinding machine of claim 7, wherein for each of said hollow cylinders, the through holes are in such a number and with such a diameter that the holed surfaces are substantially constant.

9. The grinding machine of claim 8, wherein axes of said through holes are inclined in an orientation along said food processing path.

10. A grinding machine, comprising:

a static outer jacket including a peripheral wall enclosing an inner space,
and being coupleable to a loading inlet of the grinding machine;

a plurality of successive annular recesses in said peripheral wall, said
recesses having preset volumes and being separated one from the other;

a food pusher and cutter element being mounted in said inner space for
rotation coaxial to said jacket for advancing processed food along a food
processing path;

a plurality of screening means defining differentiated screening passage
regions provided in sequence along the food processing path for screening the
processed food, said screening means being interposed between said pusher and
cutter element and said jacket and arranged each in a corresponding relationship
with a respective one of said recesses; and

a plurality of free passage means for allowing free passage of the processed
food from a screen passage region to a subsequent screen passage region, said free
passage means being constituted by respective slotted collar regions provided
between every two consecutive said differentiated screening passage regions;

wherein each one of said differentiated screening passage regions comprises
a set of through holes having diameters which vary from a region to another, said

holes being in such a number and with such a diameter that a resulting total holed surface for each of said screening passage regions is substantially constant.

11. The grinding machine of claim 10 wherein each of said annular recesses has a transverse cross-section with rounded edges which are blended with concurrent edges with a convey profile to define a forced path for the processed food, each convex profile furthermore acting as supporting and locking element for said screening means.

12. The grinding machine of claim 10, wherein said pusher and cutter element is constituted by blade elements having sharp helical edges oriented so as to provide a screw feeding effect and to skim an internal surface of said screening means as the blade elements are rotated.

13. The grinding machine of claim 10, wherein said plurality of screening means each includes a thin hollow cylindrical body coaxially arranged with respect to said jacket and comprising sets of through holes distributed on successive surface regions thereof, said sets of holes defining said differentiated screening passage regions.

14. The grinding machine of claim 10, wherein the peripheral wall of said static outer jacket flares outwards.

15. The grinding machine of claim 14, wherein said screening means includes a plurality of successive hollow cylinders having corresponding sets of through holes with diameters decreasing from one cylinder to a subsequent cylinder along said food processing path, said hollow cylinders being arranged mutually coaxial and joined to each other through a respective one of said collar regions, with the diameters of said hollow cylinders increasing along said food processing path.

16. The grinding machine of claims 15, wherein axes of said through holes are included in an orientation along said food processing path.

17. A grinding machine for a food grinding machine, comprising:
a static outer jacket including a peripheral wall enclosing an inner space, and being coupleable to a loading inlet of the grinding machine;

a plurality of successive annular recesses in said peripheral wall, said recesses having preset volumes and being separated one from the other;

a food pusher and cutter element including blade elements with blades separated by grooves alternated with annular ridges, said pusher and cutter element being mounted in said inner space for rotation coaxial to said jacket for advancing processed food along a food processing path;

a plurality of screening means forming differentiated screening passage regions provided in sequence along the food processing path for screening the processed food, said screening mean being interposed between said pusher and cutter element and said jacket, and arranged each in a corresponding relationship with a respective one of said recesses and with the grooves of a said blade element; and

a plurality of free passage means for allowing free passage of the processed food from a said recess to the corresponding grooves, and further, to a subsequent screen passage region, said free passage means being constituted by respective slotted collar regions provided between every two consecutive said differentiated screening passage regions;

wherein said food processing path includes said plurality of successive recesses, said plurality of screening means, and the corresponding grooves of said blade elements, the processed food being advanced in sequence through each one of the said recesses, screening means and corresponding grooves by said pusher and cutter element upon insertion from the grooves of a said blade element through a said screening means into, and subsequently extracted through a said free passage means, out of a said recess, and fed into the grooves of a subsequent

blade element for further insertion through a subsequent said screening means into
a subsequent said recess.

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